#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \*left, \*right;

};

struct node \*createnode(int data)

{

struct node \*temp = (struct node \*)malloc(sizeof(struct node));

temp->data = data;

temp->left = NULL;

temp->right = NULL;

return temp;

}

struct node \*insertnode(struct node \*root, int data)

{

struct node \*newnode;

if (root == NULL)

{

newnode = createnode(data);

root = newnode;

return root;

}

if (root->data > data)

{

root->right = insertnode(root->right, data);

}

else if (root->data < data)

{

root->left = insertnode(root->left, data);

}

return root;

}

void inorder(struct node \*root)

{

if (root != NULL)

{

inorder(root->left);

printf("%d ", root->data);

inorder(root->right);

}

}

void preorder(struct node \*root)

{

if (root != NULL)

{

printf("%d ", root->data);

preorder(root->left);

preorder(root->right);

}

}

void postorder(struct node \*root)

{

if (root != NULL)

{

postorder(root->left);

postorder(root->right);

printf("%d ", root->data);

}

}

int main()

{

struct node \*root = NULL;

int choice, n, value;

printf("AYUSH KUMAR SINGH \nUSN-1AY23CS048");

do

{

printf("\n1. Create BST ");

printf("\n2. Traverse BST (Inorder/Preorder/Postorder)");

printf("\n3. Exit ");

printf("\nEnter Your Choice: ");

scanf("%d", &choice);

switch (choice)

{

case 1:

printf("Enter Number of Elements you want to enter: ");

scanf("%d", &n);

for (int i = 0; i < n; i++)

{

printf("\nEnter Element %d: ", i + 1);

scanf("%d", &value);

root = insertnode(root, value);

}

break;

case 2:

printf("\nInorder: ");

inorder(root);

printf("\nPreorder: ");

preorder(root);

printf("\nPostorder: ");

postorder(root);

break;

case 3:

printf("Exiting...\n");

break;

default:

printf("Invalid choice. Please try again.\n");

}

} while (choice != 4);

return 0;

}